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(INFANT, NEWBORN
length & weight, relation to maternal occupation (Pol))
(BODY WEIGHT, in infant and child,
birth weight, eff. of maternal occup. (Pol))
(BODY HEIGHT, in infant and child,
birth length, eff. of maternal occup. (Pol))

MUSIOLIK, Marian; GORNA, Maria; SIBRON, Gerard

Results of examinations of women working in the coal industry. Gin. polska 28 no.5:559-569 Sept-Oct 57.

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(GYNECOLOGICAL DISEASES, statist.
in women workers in coal indust. in Poland (Pol))

GLOWINSKI, Mieczyslaw; LIPIANSKI, Marian; SIERON, Gerard

Determination of Largactil in urine of puerperae and newborn infants by means of paper chromatography. Polski tygod.lek. 15 no 14:497-501 4 Ap '60.

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(CHLORPROMAZINE urine)
(INFANT NEWBORN urine)
(PUERPERIUM urine)

STARZEWSKI, Wojciech; GLOWINSKI, Mieczyslaw; MUSIOLIK, Marian; SIKRON, Gerard; SMOK, Jan; WARONSKI, Wlodzimierz

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(BLOOD COAGULATION)
(PREGNANCY blood)

STARZEWSKI, Wojciech; GLOWINSKI, Mieczyslaw; MUSIOLIK, Marian; SIERON, Gerard; SMOK, Jan; WIRONSKI, Wlodzimierz

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(PREGNANCY blood)
(LABOR blood)
(PUERPRIUM blood)
(FIBRINOGEN)
(FIBRINOLYSIS)

STARZEWSKI, Wojciech; GLOWINSKI, Mieczyslaw; MUSIOLIK, Marian; SIERON, Gerard; SMOK, Jan; WARONSKI, Wlodzimierz

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(PREGNANCY blood) (LABOR blood)
(PUERPERIUM blood) (BLOOD COAGULATION)

STARZEWSKI, Wojciech; GLOWINSKI, Mieczyslaw; MUSIOLIK, Marian; SIKRON, Gerard; SMOK, Jan; WARONSKI, Wlodzimierz

Blood coagulation in pregnancy, labor and puerperium. IV. Factor V in pregnancy, labor and puerperium. Gin.polska 31 no.6:669-674 N-D '60.

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(PREGNANCY blood) (LABOR blood)
(PUERPERIUM blood) (BLOOD COAGULATION)

SIERON, Gerard

Attempted regulation of the blood serum iron level with the aid of phenactyl in cases of threatened abortion. Ginek. pol. 34 no.5:583-588 '63.

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May 10, 1954
Biological Chemistry

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Toxicity of pentothal. J. Sieroslawska (Acad. Med., Kraków). *Polska Akad. Umiejętności, Prace Komisji Nauk Farm., Dissertationes Pharm.* 4, 1-31(1952).—Pentothal anesthesia (in single or multiple doses) (1) caused a decrease in blood glucose in rabbits, (2) did not affect the hyperglycemic curve after intravenous high-glucose feeding, (3) accelerated the return to normal of the sugar curve after intravenous infusion of galactose and adrenaline, (4) did not affect the rate of disappearance of bromosulfophthalein from blood, (5) did not affect the blood nonalbumin protein and chlorides, (6) caused an insignificant anemia with lowering of hemoglobin content without affecting the white cell picture, (7) did not affect the resistance of reticulocytes, (8) had no effect on a hypotonic state, (9) did not cause sulfhemoglobinemia or methemoglobinemia, (10) caused hyperemia in liver, kidneys, spleen, and cardiac muscle without degenerative or necrotic anatomical changes. Therefore the toxicity of pentothal was found to be low in anesthetic dosa. 53 references. L. J. Piotrowski

SIEROSLAWSKA, J.

3

Medicinal value of *Digitalis lanata*. M. Gatty-Kostyal and J. Sieroslawska (*Prace Kom. Nauk. farmac. polsk. Oddz. 1952*, 4, 183–207). Studies of the medicinal properties of *Digitalis lanata* (cultivated in Poland) showed that the leaves of the plant (in form of powder or infusion) can be effectively used in heart diseases; their action is stronger and more rapid, but of shorter duration, than that of *Digitalis purpurea*. They produce no toxic symptoms, *e.g.*, irritation of the digestive tract. Results from clinical tests were in good agreement with pharmacodynamic determinations. In medicinal preps., care must be taken to eliminate the harmful effects of the enzymes, alkali, and acids present in the leaves.

A. Stompel

SIEROSLAWSKA J

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P. M. B.

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1. Of the Pharmaco-Dynamics Laboratory (Head--Prof. J. Hano, M.D.) and of the Third Surgical Clinic (Head--Prof. J. Jasienski, M.D.), Krakow Medical Academy.

SIEROSLAWSKA, Janina; OSZACKI, Jan

Tissue respiration in tourniquet shock. Polski tygod.lek. 10 no.27:902-903 4 July '55.

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(SHOCK, experimental,
tissue resp. in tourniquet shock)
(METABOLISM, TISSUE,
in tourniquet shock)

SIEROSLAWSKA, Janina; OSZACKI, Jan.

Tissue respiration in cutaneous burns in rats. Polski tygod.lek. 10 no.44:1450-1451 31 Oct 55.

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(BURNS, experimental,
tissue resp. in)
(METABOLISM, TISSUE,
in resp. of tissue in exper. burns)

HANO, J., SIKROSLAWSKA, J.

Investigations on biological action of Adonis vernalis L. Acta Poloniae pharm. 11 Suppl.:70-72 1955.

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(ADONIS,
vernalis, biol. action)

SIEROSLAWSKA, J.

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Alina S. Szczesniak

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1. Z Pracowni Farmakodynamiki A.M. w Krakowie, Kierownik: prof. dr. J. Hano i z II Kliniki Chirurgicznej A.M. w Krakowie Kierownik: prof. dr. K. Michejda Krakow, ul. Kopernika 21.

(METABOLISM,
oxygen consumption, eff. of exper. inj. (Pol))
(WOUNDS AND INJURIES, experimental,
eff. on oxygen consumption (Pol))

STERCZAŃSKA, Janina

Pharmacological properties of gamma-aminobutyric acid (GABA) and its derivatives. Post. hig. med. dosw. 18 no.3:413-462 '64

1. Z Zakładu Farmakodynamiki Akademii Medycznej w Krakowie (Kierownik: prof. dr. J. Hano).

SIEROSLAWSKA, Janina

Pharmacologic properties of γ-aminobutyric acid and its derivatives. II. Effect on the central and peripheral nervous system. Arch. immun. ther. exp. 13 no.1:70-126 '65

1. Department of Pharmacodynamics, School of Medicine, Cracow.

SIEROSLAWSKA, Teodozja

Electrophoretic picture of blood serum proteins after therapy with typhoid vaccine. Klin.ocsna 30 no.2:163-165 '60.

1. Z Kliniki Ocznej A.M. we Wroclawiu. Kierownik: prof.dr med. W.J. Kapuscinski.

(BLOOD PROTEINS)
(TYPHOID immunol.)
(VACCINATION)
(EYE dis.)

SIEROSLAWSKA, Teodozja

A case of carcinoma planocellulare of the conjunctiva and cornea. Klin.oczna 30 no.3;283-286 '60.

1. Z Kliniki Ocznej A.M. we Wroclawiu. Kierownik: prof. dr med. W.M.Kapuscinski.
(EYE neopl)
(CARCINOMA casereports)

KAPUSCINSKI, Witold J.; MEJBAUM-KATZENELLENBOGEN, Wanda; SIEROSLAWSKA, Teodozja

Paper electrophoresis of proteins in the aqueous humor in experimental uveitis in the rabbit. Klin.oczna 31 no.4:325-330 '61.

1. Z Kliniki Ocznej AM we Wroclawiu Kierownik: prof. dr med. W. J. Kapuscinski Z Zakladu Chemii Fizjologicznej AM we Wroclawiu Kierownik: prof. dr W. Mejbaum-Katzenellenbogen.

(UVEITIS exper) (PROTEINS metab)
(AQUEOUS HUMOR metab) (ELECTROPHORESIS)

SIEROSLAWSKA, Teodozja

On electrophoresis of the lens. Klin. oczna 32 no.2:105-110 '62.

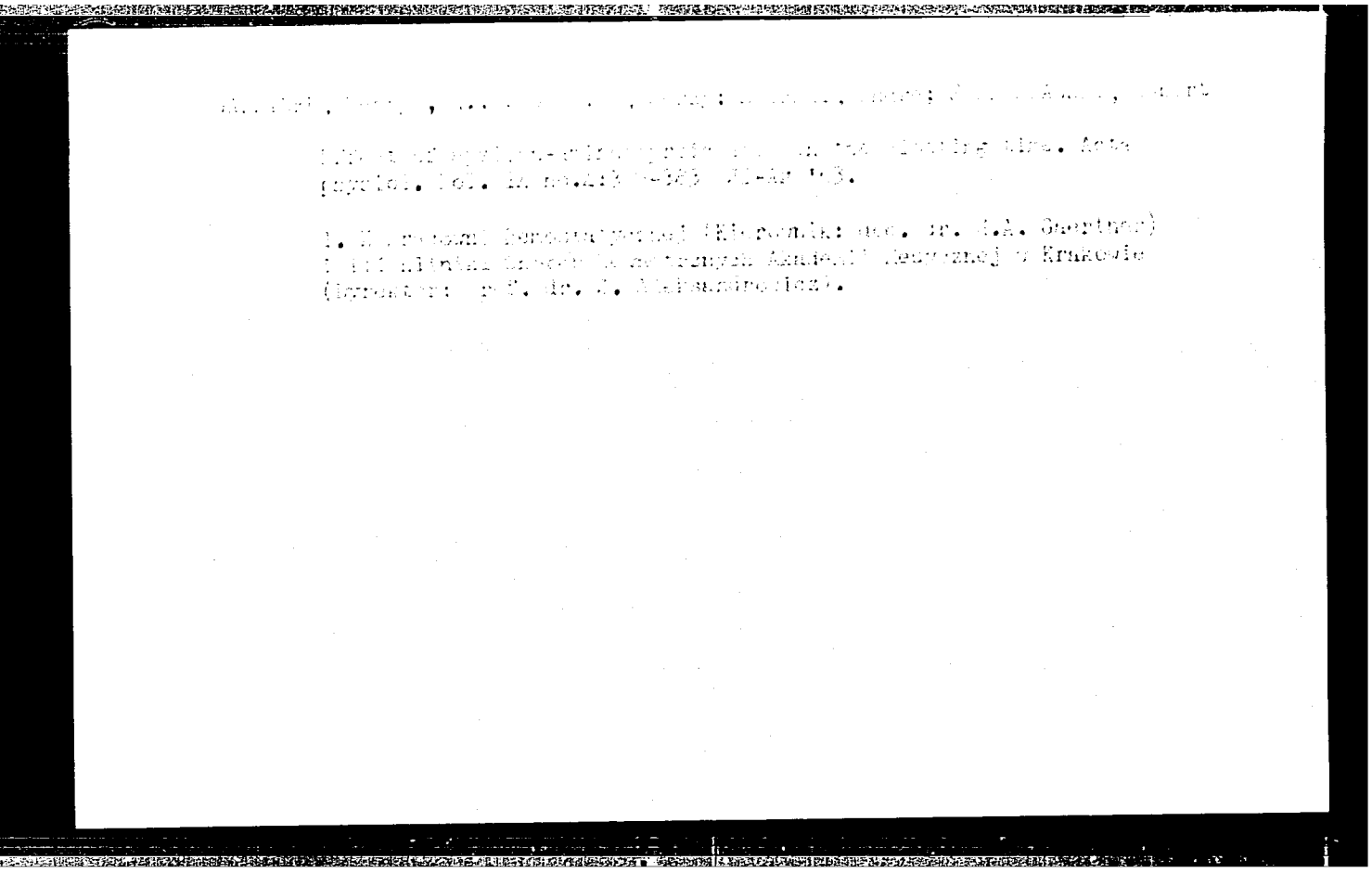
1. Z Kliniki Chorob Oczu AM we Wroclawiu Kierownik: prof. dr med. W. J. Kapuscinski.

(LENS CRYSTALLINE chem) (ELECTROPHORESIS)
PROTEINS chem)

SIEROSLAWSKA, Teodozja; BRODZIAK, Kazimiera

Influence of chymotrypsin on adhesion of the fron part of the choroid. Klin. oczna 32 no.3:215-219 '62.

1. Z Kliniki Chorob Oczu AM we Wroclawiu Kierownik: prof. dr med. W. Kapuscinski.
(CHYMOTRYPSIN) (CHOROID) (SCLERA)



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(BLOOD TRANSFUSION, in various diseases,
thrombosis of leg, drip transfusion)
(THROMBOSIS,
leg, ther., drip blood transfusion)
(LEG, BLOOD SUPPLY,
thrombosis, ther., drip blood transfusion)

SIEROSZEWSKI, Józef.

Prof. Dr Wilhelm Włodzimierz Sowiński. Gin. polska 27 no.1: 1-6 1956.

(OBITUARIES,
Sowiński, Wilhelm W.)
(BIOGRAPHIES,
Sowiński, Wilhelm W., bibliog.)

SIEROSZEWSKI, Józef.

Precancerous conditions of the uterus. Gin. polska 27 no.1: 99-109 1956.

1. Z I Kliniki Chorob Kobiecych i Polosnictwa A.M. w Lodzi Kierownik: prof. dr J.Sierosszewski. Lódź, Moniuszki 1.
(UTERUS, neoplasms,
precancer (Pol))

KOMOROWSKA, Alina; LINIECKA, Janina; SIEROSZEWSKI, Josef

Gynecological dispensary for children. Gin. polska 28 no.5: 571-578 Sept-Oct 58.

1. Z Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr. med. J. Sieroszewski. A. Komorowska, Lodz, Plac Dabrowskiego 2.

(CLINICS,
pediatric gyn., organiz. & work in Poland (Pol))
(GYNECOLOGICAL DISEASES, in infant and child
clinics, organiz. & work in Poland (Pol))
(PEDIATRIC DISEASES
gyn., clinics, organiz. & work in Poland (Pol))

SIEROSZEWSKI, Josef (Lodz, Piotrkowska 203 m. 5.)

Surgery of vesicovaginal & rectovaginal fistulae using a modified Sposokukocki technic. Gin. polska 29 no.2:195-200 Mar-Apr 58.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A. M. w Lodzi Kierownik: prof. dr med. J. Sieroszewski.

(FISTULA, VESICOVAGINAL, surg.
technic (Pol))
(VAGINA, fistula
rectovaginal, surg. technic (Pol))
(RECTUM, fistula
same)

SIEROSZEWSKI, Jozef; LAUDYNSKA, Estella; NOWICKI, Zbigniew

Surgical therapy of inflammatory conditions of the adnexa uteri. Gin.polska. 30 no.6:713-727 N-D '59.

1. Z I Kliniki Polozmictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosszewski.
(ADNEXITIS surg)

SIEROSZEWSKI, J.; PAJSZEZYK, L.; KESZKIEWICZ, E.

On the incidence of shock in relation to the course or pregnancy and labor. Akush.i gin. 36 no.1:42-45 Ja-F '60. (MIRA 13:10)

(PREGNANCY, COMPLICATIONS OF) (SHOCK)
(LABOR, COMPLICATED)

SIEROSZEWSKI, Josef; KI:INSKI, Janusz; NOWICKI, Zbigniew; PAJSZCZYK-KIESZKIEWICZ, Teresa; WOLODZK), Leon

Heart defects from the obstetric viewpoint. Gin. polska 32 no.2:135-144 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosszewski

(HEART DISEASE in pregn)
(PREGNANCY compl)

SIEROSZEWSKI, Josef; LUDANSKA, Estella; SAKOWSKI, Jan; KROLIKOWSKA, Maria; NOWICKI, Zbigniew; LACHOWICZ, Lilla

Selected hemodynamic problems in 3d stage of labor. Gin. polska 32 no.2:177-184 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sieroszewski
(LABOR: blood)

SIEROSZEWSKI, Jozef; LAUDANSKA, Estella; SAKOWSKI, Jan; KROLIKOWSKA, Maria; NOWICKI, Zbigniew

Hemorrhage in 3d stage of labor. Gin. polska 32 no.2:185-190 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sieroszewski
(HEMORRHAGE POSTPARTUM)

SIEROSZEWSKI, Jozef; LAUDANSKA, Estella; SAKOWSKI, Jan; KROLIKOWSKA, Maria NOWICKI, Zbigniew

Pharmacological management of 3d stage of labor. Gin. polska 32 no.2:197-201 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sieroszewski
(HEMORRHAGE POSTPARTUM prev & control)

SIEROSZEWSKI, Jozef; PAJ3ZCZYK, Teresa; KIESZKIEWICZ, Jerzy

Shock in obstetrics (according to clinical data in the period of 1955-1959. Gin. polska 32 no.2:203-214 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosszewski
(SHOCK in pregn)
(PREGNANCY compl)
(LABOR compl)

SIEROSZEWSKI, Jozef; SAKOWSKI, Jan

Author's own method in the treatment of thrombotic conditions of the lower extremities. II. Gin. polska 32 no.2:265-275 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosławski
(THROMBOEMBOLISM ther)

SIEROSZEWSKI, Jozef, LAUDANSKA, Estella

Aldridge-Meredith method for total abdominal hysterectomy. Gin. polska 32 no.2:276-280 '6..

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosiewski
(HYSTERECTOMY)

SIEROSZEWSKI, Josef; SAKOWSKI, Jan

Gynecological operations (1950-59). Gin. polska 32 no.2:281-290 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sierosszewski
(GENITALIA FEMALE surg)

SIEROSZEWSKI, Josef; KOMOROWSKA, Alina; KURNATOWSKA, Alicja; LINIECKA, Janina

Fungus infections of the vulva and vagin in young girls. Gin. polska 32 no.4:491-502 '61.

1. Z I Kliniki Poloznictwa i Chorob Kobiecych AM w Lodzi Kierownik: prof. dr J. Sierosz ewski Z Zakladu Biologii i Parazytologii Lekarskiej AM w Lodzi Kierownik: doc. dr R. Kadlubowski
(VULVA dis)
(VAGINA dis)
(MYCOSIS in inf & child)

CIESLINSKI, Stanislaw; LENKO, Jan; SIEROSZEWSKI, Jozef

A case of vesicovaginal fistula. Gin. polska 32 no.5:573-576 '61.

1. Z Kliniki Urologicznej Wojskowej AM w Lodzi Kierownik: doc. dr J.Lenko i z Kliniki Chorob Kobiecych i Poloznictwa Wojskowej AM w Lodzi Kierownik: prof. dr J.Sierowszewski.
(VESICOVAGINAL FISTULA case reports)

PAWLIKOWSKI, Tadeusz; SIEROSZEWSKI, Jozef; BOJANOWICZ, Kazimierz; RETERSKI, Zdzislaw

A case of true hermaphroditism with unusual formation of the urogenital system. Endokr. pol. 14 no.4:317-327 '63.

1. I Klinika Chorob Wewnetrznych A.M. w Lodzi Kierownik: prof. dr J.W. Grott Zaklad Endokrynologii A.M. w Lodzi Kierownik: prof. dr T. Pawlikowski I Klinika Poloznictwa i Chorob Kobiecych A.M. w Lodzi Kierownik: prof. dr J. Sieroszewski.
(HERMAPHRODITISM)

SIEROSZEWSKI, Jozef; LAUDAŃSKA, Estella; MAZUREK, Ludwik; TERLECKA, Helena, GWOŹDŹ, Antoni; WIŚNIOWSKA, Alicja.

Urological changes following extensive gynecological surgery. Pol. przegl. chir. 36 no.2:177-184 F'64

1. Z I Kliniki Chorob Kobiecych AM w Lodzi (kierownik: prof.dr. J.Sieroszewski) i z Oddzialu Urologicznego (kierownik: doc. dr. L. Mazurek) i I Kliniki Chirurgicznej AM w Lodzi (kierownik: prof.dr. M.Stefanowski).

GAERTNER, Henryk; LISIEWICZ, Jerzy; SIEROSLAWSKI, Hubert; SZIRMAI, Endre

The inactivation of thrombin by normal human urine. Pol. tyg. lek. 18 no.3:84-86 14 Ja '63.

1. Z Pracowni Hemostatycznej; kierownik: dr H. Gaertner, III Kliniki Chorob Wewnetrznych AM w Krakowie; kierownik: prof. dr J.Aleksandrowicz.
(THROMBIN) (URINE) (HYDROGEN ION CONCENTRATION)

SIEROTWINSKI, S.

Seweryn Goszczyński' Dziennik Podrozy do Tatrow (Diary from a Journey to the Tatra Mountains): a book review.

P. 177 (Wierchy) Vol. 25, 1956, Krakow, Poland.

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

SIEROTWINSKI, S.

Did Goszczynski reach Ornak?

p. 264 (Wierchy) Vol. 25,1956, Krakow, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

SIESZ[illegible]SKI, Leonard

Utilization of the production capacity in the cable industry. Problemy proj hut maszyn 11 no.9:288-292 S'63

1. Prozamet, Gliwice.

MANICKI, Jerzy; SIERPINSKI, Maciej; STANKIEWICZ, Lech

Effect of stimulation of the vagus nerve on nitrogen balance in dogs. Polski tygod.lek. 10 no.24:811-812 13 June '55.

1. Z II Kliniki Chirurgicznej A.M. w Warszawie; kierownik: prof.dr med.Jan Mossakowski) Jablonna, k. Warszawy, ul. Modlinska 63.

(NERVES, VAGUS, physiology,
eff. of stimulation on nitrogen balance in dogs)
(NITROGEN, metabolism,
eff. of vagus stimulation in dogs)

MANICKI, Jerzy; SIERPINSKI, Maciej; STANKIEWICZ, Lech; RESZKE, Halina; ZIENKIEWICZ, Konrad.

The effect of high-fat diet on protein absorption in patients with esophageal strictures. Polski tygod. lek. 11 no.2:49-52 9 Jan 56.

1. Z II Kliniki Chirurgicznej A.M. w Warszawie: kier: Kliniki: prof. dr. med. Jan Monsakowski. Jablonna k. Warszawy, ul. Modlinska 63.

(ESOPHAGUS, stenosis
protein metab. in, eff. of high-fat diet)
(PROTEIN, metab.
in stenosis of esophagus, eff. of high-fat diet)
(DIETS
high-fat, eff. on protein metab. in esophageal stenosis)
(FATS, eff.
high-fat diet, eff. on protein metab. in esophageal stenosis)

SIERPINSKI, Maciej

Sarcoma of the gallbladder. Pol. przegl. chir. 34 no.10:1015-1017 '62.

1. Z II Kliniki Chirurgicznej AM w Warszawie Kierownik: doc. dr Z. Lapinski.

(SARCOMA) (GALLBLADDER)

SIERPINSKI, Maciej

Abscess of the liver as a complication of amebiasis. Pol. tyg. lek. 18 no.26:951-952 Je '63.

1. Z II Kliniki Chirurgicznej AM w Warszawie; kierownik Kliniki: doc. dr med. Z. Lapinski.
(LIVER ABSCESS, AMEBIC) (DIIODOHYDROXYQUIN)
(IODOCHLOROHYDROXYQUIN) (COLITIS, ULCERATIVE)
(EMETINE) (CHLORTETRACYCLINE) (CHLOROQUINE)

GRABOWSKI, Stefan; SIERPINSKI, Maciej

Our experience with the treatment of surgical wounds with the use of Redon-Yost's hypotension. Pol. tyg. lek. 19 no.32:1236-1237 10 Ag '64.

1. Z II Kliniki Chirurgicznej Akademii Medycznej w Warszawie (kier.: doc. dr med. Zdzislaw Lapinski).

EXCERPTA MEDICA Sec 8 Vol 13/8 Surgery August 59

4426. MONDOR'S DISEASE - Choroba Mondora - Sierpiński M. II. Klin. Chir., Warszawa - POL. PRZEGL. CHIR. 1958, 30/8 (863-865)

Thrombotic thoraco-epigastric phlebitis, described for the first time by Mondor, occurs fairly often and because it is not widely known, it is sometimes erroneously diagnosed (it is often ascribed to a neoplastic origin). This disease usually clears up spontaneously after 2-3 months; its aetiology is unknown. Only symptomatic treatment is required. Recurrences have not been noted.

SIERPINSKI, S.

GAFTEK, Ya.;KOZNEVSKAYA, G.; SKLETSKIY, B.; SERPINSKIY, S.;STEMPEN', L.; TOCHEK, S.

Investigations on the pathophysiological mechanisms of speech disorders in focal affections of the dominant hemisphere of the brain. Zhur. nevr. i psikh. 55 no. 12:922-927 '55. (MLRA 9:2)

1. Otdel neyrokhirurgii Gosudarstvennogo psikhonevrologicheskogo instituta (dir.--prof. Z. Kuligovskiy) Varshava.

(SPEECH, DISORDERS, etiology and pathogenesis, brain lesions of dominant hemisphere)

(BRAIN, diseases, lesions of dominant hemisphere causing speech disord)

STEPIEN, Lucjan; SIERPINSKI, Stanislaw

Effect of focal lesions of the brain on recent visual and auditory memory in men. Rozpr.wydz.nauk med. 6 no.2:203-226 '61.

1. Z Zakladu Neurochirurgii Polskiej Akademii Nauk Kierownik: prof. dr med. L. Stepien.

(BRAIN wds & inj) (MEMORY) (VISUAL PERCEPTION) (HEARING)

SIERPINSKI, Stanislaw; TOCZEK, Stanislaw

Anomalous course of posterior inferior cerebellar arteries as a cause of the clinical picture simulating syndrome of posterior cranial fossa tumor. Neurologia etc. polska 11 no.6:757-766 '61.

1. Z Kliniki Neurochirurgii AM w Warszawie Kierownik: prof. dr med. J. Chorobski.
(CEREBELLUM blood supply) (BRAIN NEOPLASMS diag)

GRUSZKIEWICZ, J.; MAZUROWSKI, W.; SIERPINSKI, S.; SWITKA, S.

An unusual case of a foreign body in the lateral cerebral ventricle. Neurol. neurochir. psychiat. pol. 12 no.1:135-137 '62.

1. Z Kliniki Neurochirurgicznej AM w Warszawie Kierownik: prof. dr J. Chorobski i z III Kliniki Chirurgicznej AM w Warszawie Kierownik: prof. dr J. Raczynski.

(CEREBRAL VENTRICLES for body)

GRUSZKIEWICZ, J.; MAZUROWSKI, W.; SIERPINSKI, S.; SWITKA, A.

A case of a peculiar foreign body in the lateral ventricle of the brain. Neurol neurochir psych 12 no.1:135-137 Ja- F '62.

1. Klinika Neurochirurgiczna, Akademia Medyczna, Warszawa; Kierownik: prof. dr J. Chorobski; i III Klinika Chirurgiczna, Akademia Medyczna, Warszawa; Kierownik; prof. dr J. Raczynski.

SIERPINSKI, WACLAW

4

Set Th Topology

Sierpiński, Wacław. Sur le paradoxe de la sphère. Fund. Math. 33, 235-244 (1945). [MF 16876]

Let us say that 2 subsets A and B of Euclidean 3-space E_3 are n-equivalent by decomposition if they are respectively expressible as the sum of n (mutually) disjoint subsets A_i, B_i, $i=1, \cdots, n$: $A=\sum_{i=1}^{n}A_i$, $B=\sum_{i=1}^{n}B_i$ (i.e., $A_iA_j=B_iB_j=0$ for all $i\neq j$), such that A_i is congruent to B_i, $i=1, \cdots, n$. The author proves the theorem: every sphere S of E_3 is the sum of $2^{\aleph_0}$ disjoint subsets of which each is n-equivalent to S, with $n=9$. The proof utilizes a result of Hausdorff and an idea of J. von Neumann and connects with less assertive results of Hausdorff, Banach and Tarski, von Neumann, and the author.

H. Blumberg (Columbus, Ohio).

Source: Mathematical Reviews, Vol 8, No. 3

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SIERPINSKI, WACLAW

Sierpiński, Waclaw. Sur la non-invariance topologique de la propriété λ. Fund. Math. 33, 264–265 (1945).

Math

L'auteur étudie les relations entre diverses propriétés des ensembles linéaires : propriété λ de C. Kuratowski [Fund. Math. 21, 127–128 (1933)], propriété λ′ définie par l'auteur [C. R. Soc. Sci. Lett. Varsovie 30, 257–259 (1937)], et ensemble concentré de A. S. Besicovitch [Acta Math. 62, 289–300 (1934)]. Un ensemble E est dit jouir de la propriété λ si pour tout dénombrable D contenu dans E il existe un G_δ contenant D et dont l'intersection avec E se réduit à D. La propriété λ′ se définit en supprimant dans l'énoncé de λ "contenu dans E." Un ensemble E est dit concentré s'il existe un dénombrable D tel que tout ouvert contenant D contient E à un dénombrable près.

L'auteur établit d'abord que λ′ équivaut à la condition de ne contenir aucune partie non dénombrable concentrée. Il démontre ensuite que, contrairement à λ, la propriété λ′ ne se conserve pas par une homéomorphie sur E. Il utilise pour cela le résultat suivant de F. Rothberger, énoncé sans référence. Il existe un ensemble concentré H formé de nombres irrationnels qu'on peut appliquer d'une manière biunivoque et continue sur un intervalle fermé. Les démonstrations font appel à l'hypothèse du continu. En terminant, l'auteur introduit la propriété λ′ relative au plan et la relie à la précédente.

R. de Possel (Alger).

Source: Mathematical Reviews, Vol 8, No. 3

SIERPIŃSKI, WACLAW On a Topological Non-Invariant Property of Property λ

Fund

SIERPIŃSKI, WACŁAW

Sierpiński, Waclaw. Sur deux conséquences d'un théorème de Hausdorff. Fund. Math. 33, 269–272 (1945).

[MF 16877]

Without the hypothesis of the continuum, F. Hausdorff demonstrated that the line is a sum of a transfinite series of type Ω of actually increasing G_δ sets. Using this theorem, Sierpiński shows that: (1) there is a linear set E such that D linear and denumerable implies D is a G_δ relative to $E+D$; (2) there is a decomposition of the line into nonempty disjoint F_σ sets. Both results were previously known under the hypothesis of the continuum. There is a discussion of the relation of these results to others and it is pointed out that it is still not known whether, without the hypothesis of the continuum, F_σ can be replaced in statement (2) by G_δ.

J. F. Randolph (Oberlin, Ohio).

Source: Mathematical Reviews, Vol 8, No. 3

SIERPINSKI, WACLAW

ed

*Sierpiński, Wacław. **Zasady Algebry Wyższej.** [Principles of Higher Algebra.] With an appendix by Andrzej Mostowski: Outline of Galois Theory. Monografie Matematyczne, vol. 11. Warszawa-Wrocław, 1946. xii+437 pp. (Polish)

This textbook covers in a very thorough but elementary way the basic facts of classical algebra, leading up and into modern algebra. It stops short of ideal theory. The list of chapter headings with brief comments in parentheses should give an idea of the scope of the book. (I) Permutations, (II) Determinants, (III) Solution of linear equations, (IV) Linear transformations, (V) Matrices, (VI) Complex numbers, (VII) Proof of the fundamental theorem of algebra, (VIII) Polynomials (arithmetic of polynomials in the complex domain, interpolation formulae, decomposition of rational functions into simple fractions), (IX) Symmetric polynomials, (X) Equations of the 2d, 3d, and 4th degree, (XI) Equations of the division of the circle (roots of unity), (XII) Algebraic numbers (in the field of complex numbers), (XIII) Number fields (in the complex domain), (XIV) Impossibility proofs (trisection and similar topics), (XV) Systems of two algebraic equations, (XVI) Calculation of roots of algebraic equations (Sturm's and Newton's methods), (XVII) General theory of operations (abstract theory of binary operations), (XVIII) Substitutions, (XIX) Groups, (XX) Generalization of number fields (abstract fields).

The appendix by Mostowski gives a lucid and elementary account of Galois theory. The definition of the Galois group (separable case) is by means of substitutions on the roots of a polynomial. The fundamental theorem of Galois theory and its application to the solution of equations are treated.

S. Eilenberg (New York, N. Y.)

R88 Sym

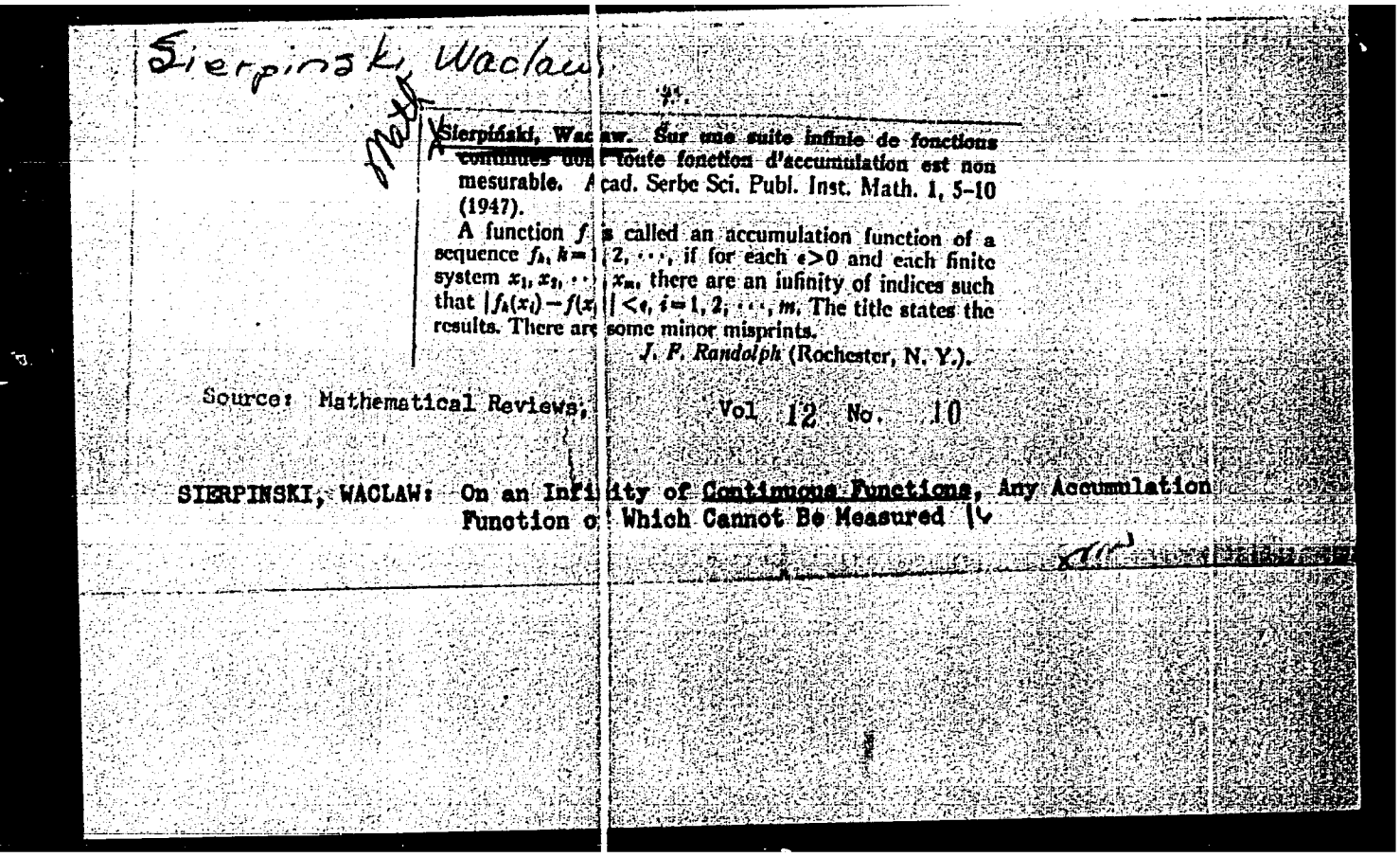
Source: Mathematical Reviews, Vol No.

SIERPINSKI, W.

Sierpiński, W. Sur un problème de triades. C. R. Soc. Sci. Varsovie 33-38, 13-16 (1946). (French. Polish summary)

A set E is said to have the property of Steiner if there exists a family $\mathfrak{F}$ of three-element subsets of E such that any two-element subset of E lies in exactly one set of the family $\mathfrak{F}$. It is known that a finite set has the property of Steiner if and only if its cardinality is of the form $6k+1$ or $6k+3$. [See E. Netto, Lehrbuch der Combinatorik, 2d ed., Teubner, Leipzig, 1927, pp. 202–218.] The author proves by using the axiom of choice that every infinite set has the property of Steiner. *W. Gustin* (Bloomington, Ind.).

Source: Mathematical Reviews, Vol 6 No. 10



Sierpinski, Waclaw

Math

Sierpiński, Waclaw. Sur une suite infinie de fonctions continues dont toute fonction d'accumulation est non mesurable. Acad. Serbe Sci. Publ. Inst. Math. 1, 5–10 (1947).

A function f is called an accumulation function of a sequence f_k, $k=1, 2, \cdots$, if for each $\epsilon>0$ and each finite system $x_1, x_2, \cdots, x_m$, there are an infinity of indices such that $|f_k(x_i)-f(x_i)|<\epsilon$, $i=1, 2, \cdots, m$. The title states the results. There are some minor misprints.

J. F. Randolph (Rochester, N. Y.).

Source: Mathematical Reviews; Vol 12 No. 10

SIERPINSKI, WACLAW: On an Infinity of Continuous Functions, Any Accumulation Function of Which Cannot Be Measured

SIERPINSKI, WACŁAW

Sierpiński, W[acław]. L'hypothèse généralisée du continu et l'axiome du choix. Fund. Math. 34, 1–5 (1947).

Denote by H the hypothesis that, m being any cardinal such that $m \geq \aleph_0$, there is no cardinal n such that $m < n < 2^m$. Denote by H_m this hypothesis for a particular m. A. Lindenbaum and A. Tarski [C. R. Soc. Sci. Varsovie. Cl. III. 19, 299–330 (1926), p. 314] stated without proof that H implies the axiom of choice and that if, for a given m, H_m is true for $p = m$, 2^m and 2^{2^m}, then m is an aleph. The author establishes the first result and then, by slight modifications of the proof, obtains the second also. *J. Todd.*

Source: Mathematical Reviews, Vol 8 No. 9

Sierpiński, Waclaw

Sierpiński, Wac[illegible]aw. Sur un théorème de M. Tarski concernant les n[illegible]mbres. Fund. Math. 34, 6–8 (1947).

It was annou[illegible]ced without proof by A. Tarski [Lindenbaum and Tarsk[illegible], C. R. Soc. Sci. Lett. Varsovie. Cl. III. 19, 299–300 (1926)] that the equivalence of the following statements can be e[illegible]tablished without the use of the axiom of choice: (a) $\mathfrak{m}$ is an aleph, (d) $[\mathfrak{m}+\aleph(\mathfrak{m})]-\mathfrak{m}=\aleph(\mathfrak{m})$. Here $\aleph(\mathfrak{m})$ is the sma[illegible]lest aleph $\mathfrak{n}$ for which the inequality $\mathfrak{n}\leq\mathfrak{m}$ does not hold.

The author sh[illegible]ows that if Tarski's statement is true, then it can also be pro[illegible]ed without using the axiom of choice that the inequality $\mathfrak{m}\leq\mathfrak{m}$ holds for every infinite cardinal $\mathfrak{m}$. However, since [illegible]t has been shown by R. Doss [J. Symbolic Logic 10, 13–15 [illegible]1945); these Rev. 7, 46] that this inequality cannot be prov[illegible]d without using the axiom of choice, we may conclude t[illegible]at Tarski's theorem is false.

B. Jónsson (Providence, R. I.).

Source: Mathematical Reviews, 1[illegible]948, Vol 9, No. 1

Sierpinski, Waclaw

Sierpiński, W[illegible]claw, Sur un ensemble plan qui se décompose [illegible] ensembles disjoints superposables avec lui. Fund. Math. 34, 9–13 (1947).

Proof, with[illegible]t use of the axiom of choice (multiplicative axiom) of the [illegible]following theorem. If E is any given set of real numbers [illegible]n the interval $0 \leq t < 1$, and $0 \in E$, one may effectively de[illegible]e a planar set P, and a decomposition r of P into k di[illegible]joint subsets, where k is the cardinal of E, such that eve[illegible]ry constituent of r is congruent to P (in the Euclidean [illegible]sense of superposition). A. Lindenbaum announced this r[illegible]sult without proof [Lindenbaum and Tarski, C. R. Soc. Sci[illegible] Lett. Varsovie. Cl. III. 19, 299–330 (1926), p. 327] as a [illegible]here existence theorem, asserting its provability with the [illegible]aid of the axiom of choice. The proof utilizes the function

$$f(t) = \sum_{n=0}^{\infty} 2^{[2^n t]} - 2^{2^n},$$

where $[x]$ den[illegible]tes the largest integer not exceeding x, and a result of von [illegible]Neumann on the algebraic independence of any finite set [illegible]f distinct values of $f(t)$, for $t > 0$. By a modification of th[illegible] argument, the author shows how to define effectively a [illegible]ondenumerable planar set which is the disjoint sum of 2[illegible] subsets, each congruent with it, thus solving a problem of [illegible]Steinhaus. *H. Blumberg.*

Source: Mathematical Reviews, [illegible]948, Vol 9, No. 1

Sierpinski, Waclaw

Sierpiński, Wacław. Deux théorèmes sur les familles de [illegible]. Fund. Math. 34, 30–33 (1947).

The author proves the following theorem: if M is an infinite set of cardinal number m and F is a family having cardinal number $\leq m$ of functions defined on M (with values in M or not in M), then there exists a family Φ consisting of 2^m subsets of M such that $f(E) \neq H$ for all $E, H \in \Phi$ such that $E \neq H$ and all $f \in F$. The proof does not consider one special case. A second theorem of the same general character is proved.

E. Hewitt (Chicago, Ill.).

Source: Mathematical Reviews, 1948, Vol 9, No. 1

Sierpinski, Waclaw

Sierpiński, Wacław. Les correspondances multivoques et l'axiome du choix. Fund. Math. 34, 39–44 (1947).

D. König [Fund. Math. 8, 114–134 (1926)], using the axiom of choice, showed that if an (n, n) correspondence exists between two sets then a (1, 1) correspondence can be set up between these sets in such a way that the correspondent in it of an element is one of its n correspondents in the (n, n) correspondence. It is now shown that a proof of this result in the case $n=2$ which does not appeal to the axiom of choice would imply a proof, without use of this axiom, of the existence of a set not measurable-L. It is shown that the special case $n=2$ of König's result is a consequence of the special case of the axiom of choice concerned with selection from classes of couples. *J. Todd.*

Source: Mathematical Review, Vol 8 No.10

Sierpinski, Waclaw

Sierpiński, Waclaw. Sur un problème concernant le crible de M. Lusin. Fund. Math. 34, 69–71 (1947).

A sieve can be regarded as a function $E(r)$ associating a set $E(r)$ with each rational r. Its nucleus is the set $K_s(E(r)) = \sum \prod_i E(r_{ij})$, where the summation is over all decreasing sequences $\{r_i\}$. Consider $E(u, v)$, a function associating a set $E(u, v)$ with each pair of rationals u, v. Write $E(u) = K_s(E(u, v))$, $E = K_s(E(u))$. Kuratowski suggested the problem: do there exist functions $\phi(r)$, $\psi(r)$, associating rationals with the rational r, such that if $E(r) = E(\phi(r), \psi(r))$ then $E = K_s(E(r))$? It is shown that the answer is in the negative.

Denote by $K(\Phi)$ the class of all sets $K_s(E(r))$ where the $E(r)$ are sets of a class Φ. It is known that $KK(\Psi) = K(\Psi)$ whenever Ψ is a (finitely) multiplicative class. This result is not, however, true for arbitrary classes. *J. Tpdd.*

Source: Mathematical Reviews, Vol 8 No. 10.

SIERPINSKI, WACLAW

Sierpiński, Waclaw. Un théorème sur les puissances des ensembles. Fund. Math. 34, 72–74 (1947).

The following theorem is established without appeal to the axiom of choice: if M is a class with cardinal $\mathfrak{m}$ and N a subclass with cardinal $\mathfrak{n}$ and if $\mathfrak{p}$ satisfies $\mathfrak{m} \geqq \mathfrak{p} \geqq \mathfrak{n}$ then there exists a class P with cardinal $\mathfrak{p}$ and such that $M \supset P \supset N$. *J. Todd* (London).

Source: Mathematical Reviews, Vol. 8 No. 10

SIERPINSKI, WACLAW

Sierpiński, Wacław. Démonstration de l'égalité ~~$2^m = 2^n$~~ pour les nombres cardinaux transfinis. Fund. Math. 34, 113–118 (1947).

Sierpiński, Wacław. Sur la différence de deux nombres cardinaux. Fund. Math. 34, 119–126 (1947).

If m and n are two cardinals and if there exists a unique cardinal p such that $m = n + p$, then one writes $p = m - n$. The author proves without the use of the axiom of choice various theorems concerning the subtraction of cardinals. The above definition is due to A. Tarski who has also announced, without proofs, most of the theorems proved by the author [Lindenbaum and Tarski, C. R. Soc. Sci. Lett. Varsovie. Cl. III. 19, 299–330 (1926)].

B. Jónsson (Providence, R. I.).

Source: Mathematical Reviews, Vol 9 No. 7

SIERPINSKI, WACLAW

Sierpiński, Waclaw. Sur les images de classe 1 d'ensembles linéaires. Fund. Math. 34, 163–165 (1947).

Let $f(x)$ be a real function of Baire class α on a linear set X. The set $f(X)$ is called an "image of class α" of X. The author proves that every image of class 2 of X is an image of class 1 of an image of class 1 of X. This theorem can be generalized to images of class n (finite), which can be represented as n-fold superposed images of class 1.

A. Rosenthal (Lafayette, Ind.).

Source: Mathematical Reviews, 1948, Vol 9, No. 4

SIERPINSKI, WACLAW

Sierpiński, Waclaw. Sur l'implication $(2m \leq 2n) \rightarrow (m \leq n)$ pour les nombres cardinaux. Fund. Math. 34, 148–154 (1947).

The author proves, without using the axiom of choice, that if m and n are two cardinals such that $2m \leq 2n$, then $m \leq n$. This theorem was announced without proof by A. Tarski [Lindenbaum and Tarski, C. R. Soc. Sci. Lett. Varsovie. Cl. III. 19, 299–330 (1926)]. *B. Jónsson.*

Source: Mathematical Reviews, Vol 7 No. 7

SIERPINSKI, WACLAW

Sierpiński, Waclaw. Sur l'inversion du théorème de Bolzano-Weierstrass généralisé. Fund. Math. 34, 155–156 (1947).

Let M be any metric space. A sequence $\{A_n\}_{n=1}^{\infty}$ of subsets of M is said to be convergent if, for every $p \in M$ and for every open sphere S with center p, $S \cap A_n = 0$ for almost all n or $S \cap A_n \neq 0$ for almost all n. The author proves that, if $2^{\aleph_0} = \aleph_1$, then every nonseparable metric space contains a sequence of subsets which has no convergent subsequence.

E. Hewitt (Chicago, Ill.).

Source: Mathematical Reviews, 1948, Vol 9, No. 2

Sierpinski, Waclaw

Sierpiński, Wacław. Sur une proposition qui entraine l'existence des ensembles non mesurables. Fund. Math. 34, 157–162 (1947).

The main concern of the author is to obtain certain known results without the use of the axiom of choice. He starts with proposition P: A "one-valued" image B of a set A (i.e., each element of A has a unique mate in B) is not of higher cardinal than A. On the basis of P, he proves successively, without resort to the axiom of choice, that: (1) $\aleph_1 \leqq 2^{\aleph_0}$; (2) if $2^{\aleph_0}$ is the sum of 2 cardinals, at least one of them equals $2^{\aleph_0}$; (3) there exists a linear nondenumerable set containing no (nonnull) perfect set; (4) there exists a linear (Lebesgue) nonmeasurable set. The reasoning utilizes Lebesgue's decomposition of an interval into $\aleph_1$ (nonnull) disjoint sets [J. Math. Pures Appl. (6) 1, 139–216 (1905), p. 213]; and the author's result [Mathematica, Cluj 3, 30–32 (1930)] that if we can determine a linear order for the "Vitali classes" V (of real numbers), then we can define a (Lebesgue) nonmeasurable set; here V is a set consisting of all the real numbers which differ from a fixed real number by a rational amount. It is additionally shown that the axiom of choice is equivalent to the following proposition: of two sets, at least one is a one-valued image of the other.

H. Blumberg (Columbus, Ohio).

Source: Mathematical Reviews, Vol 9 No. 7

SIERPINSKI, W.

Author: Sierpinski, W.

Title: Textbook of Introductory Elementary Functions.
267 pp.

Date: 1948. Warsaw

Subject: 1. Functions. 2. Calculus, differential

Available: Library of Congress, Call No: QA303.S57 1923a
Brown University Library.

Source: Lib. of Cong. Subj. Cat., 1950, vol. 2

SIERPINSKI, W.

Sierpiński, W. Remarque sur la répartition des nombres premiers. Colloquium Math. 1, 193–194 (1948).

This note contains a proof of the following theorem: to each integer n there corresponds a prime $p>n$ such that not one of the integers $p\pm j$, $j=1, 2, \cdots, n$, is a prime. The proof is simple, but uses the Dirichlet theorem about primes in an arithmetic progression. The author remarks that it would be interesting to discover an elementary proof of his result. Now that there are elementary proofs of the Dirichlet theorem his proof is technically elementary, but it would still be interesting to obtain a direct elementary proof.

R. D. James (Vancouver, B. C.).

Source: Mathematical Reviews, Vol 10 No. 7

SIERPINSKI, W.

Sierpiński, W. Sur une propriété de la droite qui résulte de l'hypothèse du continu. Mathematica, Timişoara 23, 52–53 (1948).

Proof by means of the continuum hypothesis, of the theorem that a straight line L is the sum of $2^{\aleph_0}$ disjoint sets E, each congruent to L by denumerable decomposition; i.e., L and each E are decomposable into $\aleph_0$ disjoint components: $L=\sum_{n=1}^{\infty}L_n$, $E=\sum_{n=1}^{\infty}E_n$, such that, for every n, L_n is congruent to E_n (in the sense of superposability). The argument uses a result of Banach and Tarski [Fund. Math. 6, 244–277 (1924)]. A corollary is the validity, under the continuum hypothesis, of a like result when L is an n-dimensional Euclidean space, $n>1$. For $n\geq 3$, this result holds (as proved in an earlier paper of the author by a lengthier argument [Fund. Math. 33, 235–244 (1945); these Rev. 8, 140]) without recourse to the continuum hypothesis, congruence being taken in the sense of finite decomposition.

H. Blumberg (Columbus, Ohio).

Source: Mathematical Reviews, Vol 10 No. 2

SIERPIŃSKI, W.

Sierpiński, W. Sur quelques propriétés du nombre $2^{\aleph_0}$. Mathematica, Timişoara 23, 60–64 (1948).

The author proves without using the axiom of choice various theorems from the arithmetic of cardinal numbers (e.g., if m is a nonfinite cardinal, then $m \leqq 2^{\aleph_0}$ implies $2^{\aleph_0} \leqq 2^m$). These theorems were announced, without proofs, by A. Tarski [Lindenbaum and Tarski, C. R. Soc. Sci. Lett. Varsovie. Cl. III. 19, 299–330 (1926)], but the following lemma, which is used in the proofs, is new. Any nonfinite set of real numbers can be constructively decomposed into an infinite sequence of nonempty disjoint subsets.

B. Jónsson (Providence, R. I.).

Source: Mathematical Reviews, Vol. 10 No. 5

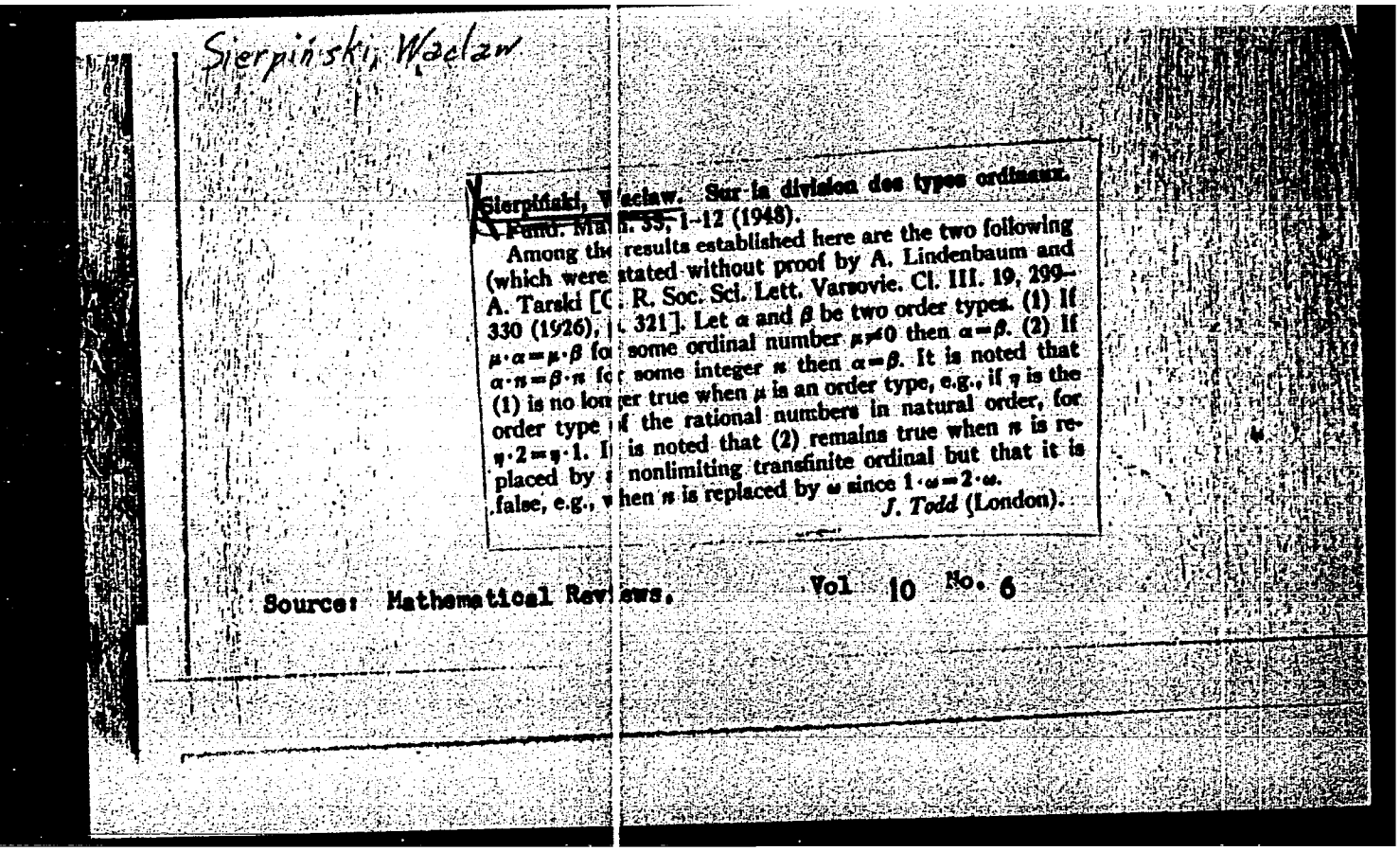
SIERPIŃSKI, W.

2

Sierpiński, W. Sur un pro[blème] concernant les espaces métriques. Mathematica[Timisoara 23, 65-69 (1948).

All spaces are metric. A s[pace] E contains a model of a space M if there is a one-to[-one] mapping f of M into E such that $r_E(f(p), f(q)) = kr_M(p, q)$ for all $p, q \in M$. If $k=1$ and $f(M)=E$, E and M are isometric. If $\epsilon>0$, $f(M)=E$ and $|r_E(f(p), f(q)) - r_M(p, q)| < \epsilon$ for all $p, q \in M$, E and M differ by less than ϵ. In connection with the problem, ascribed to Borsuk, of the existence of a semi-compact E ($E=\sum_1^\infty E_n$, E_n compact) containing, for every compact M, an isometric E_M, the author proves the following results. (1) There is no compact space which contains a model of every denumerable space. (2) There is a compact space which contains a model of every finite space. (3) There is a semi-compact space which contains, for every finite space M, an isometric E_M. (4) For every space E and for every $\epsilon>0$ there is a space H with rational distances which differs from E by less than ϵ. (5) There is a denumerable space H_0 with rational distances which, for all denumerable spaces E and all $\epsilon>0$, contains a space H_E differing from E by less than ϵ [cf. P. Urysohn, Bull. Sci. Math. (2) 51, 43-64, 74-90 (1927)]. *L. W. Cohen* (Flushing, N. Y.)

rce: Mathematical Reviews, Vol. 10, No. 1



Sierpiński, Waclaw

Sierpiński, W[aclaw]. Sur la division des types ordinaux. Fund. Ma[th.] 35, 1–12 (1948).

Among th[e] (which were [stated] A. Tarski [C[R. Soc. Sci. Lett. Varsovie. Cl. III. 19, 299–330 (1926), [321]. Let α and β be two order types. (1) If $\mu\cdot\alpha=\mu\cdot\beta$ fo[r some ordinal number $\mu\neq 0$ then $\alpha=\beta$. (2) If $\alpha\cdot n=\beta\cdot n$ fo[r some integer n then $\alpha=\beta$. It is noted that (1) is no lon[ger true when μ is an order type, e.g., if η is the order type [of the rational numbers in natural order, for $\eta\cdot 2=\eta\cdot 1$. I[t] is noted that (2) remains true when n is replaced by [a] nonlimiting transfinite ordinal but that it is false, e.g., w[hen n is replaced by ω since $1\cdot\omega=2\cdot\omega$.

J. Todd (London).

Source: Mathematical Rev[iews], Vol 10 No. 6

SIERPINSKI, WACLAW: About Sets That Are Quasi Continuous in One Another

Sierpiński, Waclaw. Sur les ensembles presque contenus les uns dans les autres. Fund. Math. 35, 141-150 (1948).

In extension of the terminology used in the above review let $A \leqq B$ mean that the set $A-B$ is finite, and let $A = B$ mean that $A \leqq B$ and $B \leqq A$. Define a pair of families of sets $\mathfrak{A}$ and $\mathfrak{B}$, the family $\mathfrak{A}$ having power $\mathfrak{a}$ and the family $\mathfrak{B}$ having power $\mathfrak{b}$, to be in $\mathfrak{a}, \mathfrak{b}$ (cardinal) gap if $A \leqq B$ for all $A \in \mathfrak{A}$, $B \in \mathfrak{B}$. It is known that no set X is $A \leqq X \leqq B$ for all $A \in \mathfrak{A}$, $B \in \mathfrak{B}$. do exist. It is shown that $\aleph_0, \aleph_0$ gaps exist and that $\aleph_1, \aleph_1$ gaps under the continuum hypothesis $\aleph_1, \aleph_0$ gaps in $\mathfrak{N}$ exist, so that also shown with the aid of the continuum hypothesis that Ω, ω (ordinal) gaps and Ω limits exist. Finally, again using the continuum hypothesis, an $\mathfrak{N}$-set Y and a pair of transfinite sequences of $\mathfrak{N}$-sets A_μ ($\mu<\Omega$) and B_μ ($\mu<\Omega$) are constructed with $A_\mu < A_\nu < Y < B_\nu < B_\mu$ for all $\mu<\nu<\Omega$ such that $X = Y$ for any set X having the property that $A_\mu < X < B_\mu$ for all $\mu<\Omega$.

W. Gustin (Bloomington, Ind.).

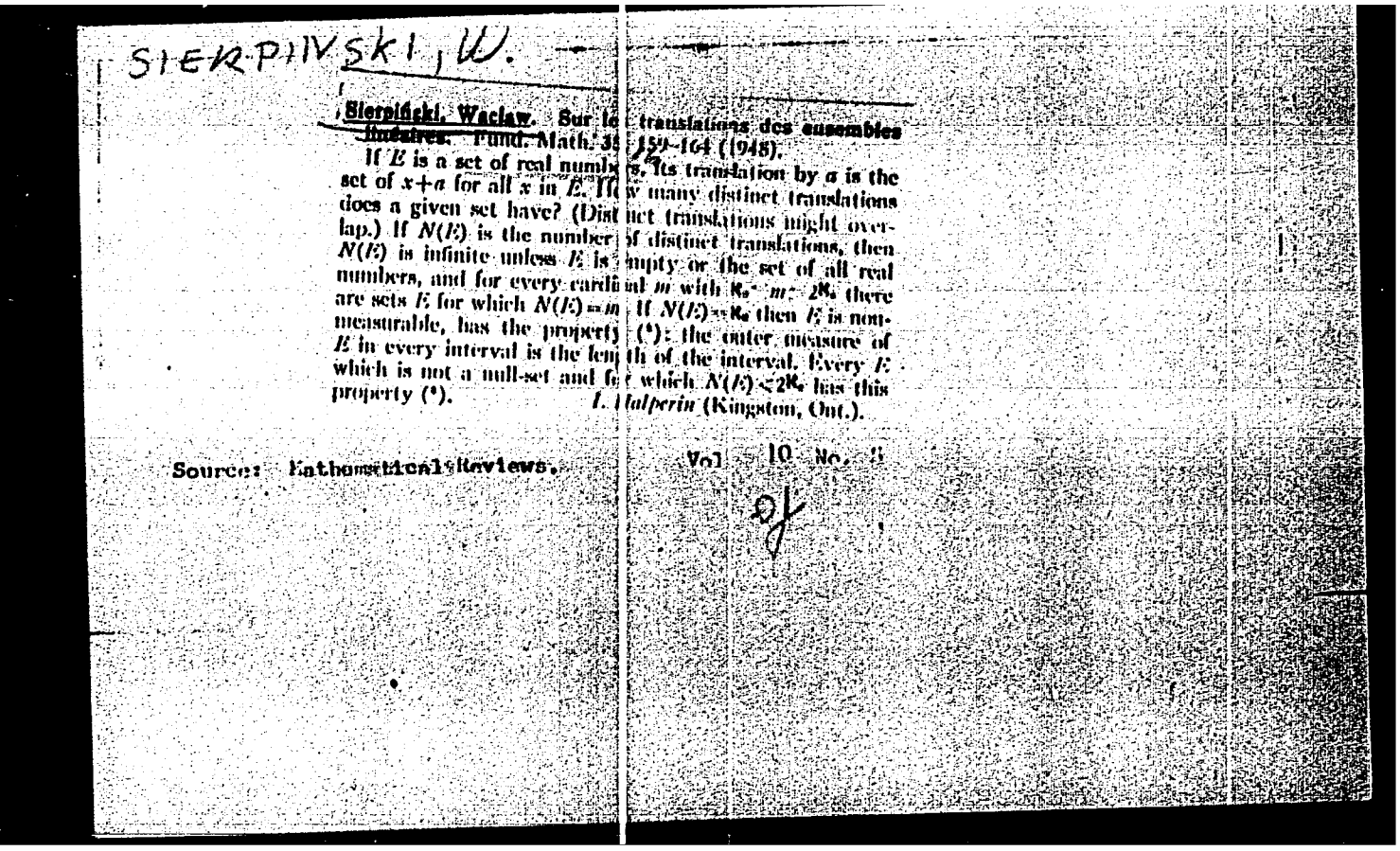
Source: Mathematical Reviews, Vol 10, No. 10

SIERPINSKI, WACLAW

Sierpiński, Wacław. Sur l'équivalence des ensembles par décomposition en deux parties. Fund. Math. 35, 151–158 (1948).

Two sets A and B in a Euclidean space are equivalent by decomposition into n parts (notation, $A =_n B$) if they admit decompositions into disjoint components: $A = A_1 + \cdots + A_n$, $B = B_1 + \cdots + B_n$ with A_i and B_i, $i = 1, \cdots, n$, congruent, i.e., superposable by translation or rotation. The sets A and B are equivalent by finite decomposition if there exists a positive integer n such that $A =_n B$. Among other results, the author proves that, if K is the linear continuum, and B any bounded or denumerable set, then $K =_3 K - B$. If R, A, respectively, are the sets of rational and of algebraic numbers, then R and A are not equivalent by finite decomposition; nor are R and D so equivalent, where D is the set of finite decimal fractions. It is finally proved, with the aid of a result of Hausdorff, that the surface S of a sphere is decomposable into 10 disjoint parts of which four and six yield respectively, upon suitable translations and rotations, two spherical surfaces each congruent to S. This result connects with one due to R. M. Robinson [Fund. Math. 34, 246–260 (1947), in particular, p. 254; these Rev. 10, 106]. Most of the proofs are elementary and brief. *H. Blumberg* (Columbus, Ohio).

Source: Mathematical Reviews, Vol. 10 No. 7



SIERPIŃSKI, W.

Sierpiński, Wacław. Sur les translations des ensembles linéaires. Fund. Math. 35 159–164 (1948).

If E is a set of real numbers, its translation by a is the set of $x+a$ for all x in E. How many distinct translations does a given set have? (Distinct translations might overlap.) If $N(E)$ is the number of distinct translations, then $N(E)$ is infinite unless E is empty or the set of all real numbers, and for every cardinal m with $\aleph_0 \leq m \leq 2^{\aleph_0}$ there are sets E for which $N(E)=m$. If $N(E)=\aleph_0$ then E is non-measurable, has the property (*): the outer measure of E in every interval is the length of the interval. Every E which is not a null-set and for which $N(E)<2^{\aleph_0}$ has this property (*). *I. Halperin* (Kingston, Ont.).

Source: Mathematical Reviews, Vol. 10 No. 5

Sierpinski, Waclaw

Sierpiński, Wacław. Sur un problème de la théorie générale des ensembles équivalent au problème de Jordan. Fund. Math. 35, 165–174 (1948).

The problem in question is whether a class F satisfying the three following conditions is necessarily countable. (1) If $X \in F$, $Y \in F$ then either $X \subset Y$, $X \supset Y$ or $XY = 0$. (2) If $F_1 \subset F$ and if $X \in F_1$, $Y \in F_1$ imply $XY = 0$ then F_1 is at most countable. (3) If $F_2 \subset F$ and if $X \in F_2$, $Y \in F_2$ imply either $X \subset Y$ or $X \supset Y$ then F_2 is at most countable and contains a maximal element. The author points out, in a footnote added in proof, that D. Maharam [Bull. Amer. Math. Soc. 54, 588–590 (1948); these Rev. 9, 573] has noted that the condition (3) can be replaced by (4) if $F_3 \subset F$ and if $0 \neq X \in F_3$, $0 \neq Y \in F_3$ imply $XY \neq 0$ then F_3 is at most countable. Conditions (2) and (4) are weaker than (2) and (3).

J. Todd (London).

Source: Mathematical Reviews, Vol. 10 No. 6

Sierpinski, Wacław

Sierpiński, Wacław. Sur l'analycité de l'espace D_ω au sens de M. Menger. Fund. Math. 35, 208–212 (1948).

K. Menger [Jber. Deutsch. Math. Verein. 37, 213–226 (1928)] called a separable metric space M analytic if it could be represented in the form $M=\sum\prod A(n_1, n_2, \cdots, n_k)$ where the product is over $k=1, 2, \cdots$, where the summation is over all infinite sequences $(n_1, n_2, \cdots)$ of integers, and where the sets A are closed in M and such that (*) each product $\prod A$ reduces to a single point (provided no set A is empty). The author now defines, in the nonseparable set D_ω [M. Fréchet, Les Espaces Abstraits, Gauthier-Villars, Paris, 1928, p. 97], a system of closed sets $\{A(n_1, n_2, \cdots, n_k)\}$ which have the property (*) and for which $D_\omega=\sum\prod A$.

J. Todd (London).

Source: Mathematical Reviews, Vol. 10 No. 6

Wacław, Sierpiński, Wacław

Sierpiński, Wacław. Exemple effectif d'une famille de $2^{\aleph_0}$ ensembles linéaires croissants. Fund. Math. 35, 213–216 (1948).

The object of this note is to define effectively a family F of c ($=2^{\aleph_0}$) linear, increasing sets (i.e., such that each of these sets is a sub- or superset of each of the others). The chief aid is the following lemma, whose proof is a modification of an idea of Lebesgue [J. Math. Pures Appl. (6) 1, 139–216 (1905), in particular, p. 213]. One can effectively define a function $f(D)$ which mates with each enumerable set D of ordinals greater than ω and less than Ω a linear, nonnull set $f(D)$ such that $f(D)$ and $f(D')$ are disjoint whenever D and D' are distinct. The proof proceeds by considering the infinite sequence $r_1, r_2, \cdots$ of all rationals, and representing an irrational x, $0<x<1$, by the continued fraction

$$x=\frac{1}{\nu(1,x)+}\frac{1}{\nu(2,x)+}\cdots,$$

where the ν's are uniquely determined positive integers. If $u_1, u_2, \cdots$ is an infinite sequence of distinct rationals, $\varphi(u_1, u_2, \cdots)$ denotes the order type of the u_n when arranged according to magnitude. If, now, D is a denumerable set of ordinals greater than ω and less than Ω, $f(D)$ is defined as the set of all the irrationals x, $0<x<1$, such that the set of order types

$$\varphi(r_{\nu(1,x)}, r_{\nu(1,x)+\nu(2,x)}, r_{\nu(1,x)+\nu(2,x)+\nu(3,x)}, \cdots)$$

with $k=1, 2, \cdots$, is identical with D except permissibly for the order of its terms. It follows at once from the result of this note, by the adjunction of the continuum hypothesis [as was proved in a different manner by the author in his Hypothèse du Continu, Warsaw, 1934, p. 120] that the continuum is the sum of c increasing sets.

H. Blumberg (Columbus, Ohio).

LFH

Source: Mathematical Reviews, Vol 10, No. 10

SIERPINSKI, WACLAW

Sierpiński, Wacław, Remarque sur deux axiomatiques des espaces abstraits. Soc. Sci. Lett. Varsovie. C. R. Cl. III. Sci. Math. Phys. 40 (1947), 46-49 (1948). (French. Polish summary)

This paper shows that from the topological point of view the study of the "gestufte Raüme" of Hausdorff [cf. Fund. Math. 25, 486-502 (1935), p. 489] is equivalent to the study of the (V) space of Fréchet [cf. Les espaces abstraits . . ., Gauthier-Villars, Paris 1928, p. 277] satisfying the additional condition (C): If V_1 and V_2 are neighborhoods of a then there is another neighborhood V of a such that $V \subset V_1 V_2$ ("x_0 is a point of accumulation of X" is defined to mean "every neighborhood of x_0 contains infinitely many points of X"). It is shown that if one begins with a (V) space satisfying (C), and lets X' be the set of points of accumulation of X, then $X \to X_1 = X + X'$ defines a "gestufter Raum". It is also proved that if one begins with a "gestufter Raum", then "V is a neighborhood of a" means "$a \bar{\in} (E - V)_1$" defines a (V) space satisfying (C); and from the (V) space so obtained, $X + X'$ is the same as X_1 of the "gestufter Raum".

H. Tong (Paris).

Source: Mathematical Reviews, Vol 12 No. 7

Sierpiński, Wacław

Sierpiński, Wacław, **Sur les relations entre quelques propriétés fondamentales des espaces topologiques.** Soc. Sci. Lett. Varsovie. C. R. Cl. III. Sci. Math. Phys. 40 (1947), 66–78 (1948). (French. Polish summary)

Let S be a T_1 space. The author studies relations among the following properties concerning S. (H): S is a Hausdorff space; (A): S satisfies the first axiom of countability; (B): S possesses a denumerable base; (C): no infinite sequence can sequentially converge to two distinct limits; (D): S is a denumerable set. It is shown that $A \cdot D \rightarrow B$ and $A \cdot C \rightarrow H$. He then shows the existence or nonexistence (by examples or easy deductions from the relations given in the preceding sentence and the facts that $B \rightarrow A$ and $H \rightarrow C$) of T_1 spaces having the above properties (or negations) conjointly. All the thirty-two possibilities are studied. If G is the property that $E \subset S$ and $a \in \overline{E - [a]}$ implies a is the sequential limit of a sequence of elements different from a, then clearly $A \rightarrow G$. An example of a denumerable Hausdorff space which does not enjoy G is given.

H. Tong (Paris).

Source: Mathematical Reviews, Vol 12, No. 3

SIERPINSKI, W.

Math.

Sierpiński, W. Remarques sur la décomposition des nombres en sommes des carrés de nombres impairs. Colloquium Math. 2, 52–55 (1949).

The author notes the equivalence of the two theorems: (A) Every integer of the form $8k+3$ is the sum of three squares; and (B) every integer is the sum of at most 10 odd squares; due respectively to Gauss and Turski. If one seeks to base a proof of either (A) or (B) on Lagrange's theorem, (C) every integer is the sum of four squares, using only very elementary reasoning one can prove: (D) Every integer is the sum of at most 11 odd squares. *D. H. Lehmer.*

Source: Mathematical Reviews, Vol. 12 No. 7

SIERPIŃSKI, W.: Remarks on the Decomposition of Numbers into Sums of the Squares of Odd Numbers

Gauss

S. BANACH, [illegible]

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Sierpiński, Wacław. Sur les ensembles linéaires décomposables en [illegible] équivalents par décomposition finie. Fund. Math. 36, 1–6 (1949).

Two linear sets A and B are equivalent by finite decomposition (in notation, $A=B$) if there exist a positive integer n, and decompositions $A=A_1+\cdots+A_n$, $B=B_1+\cdots+B_n$ into disjoint sets, such that A_i and B_i, $i=1,\cdots,n$, are superposable (by translation or rotation). Among other results are the following. (I) If E is a linear infinite set, there exists a subset H of E such that $E\neq H$ (i.e., $E=H$ is false). The proof, which is brief and simple, distinguishes the two cases, (1) E bounded, (2) E unbounded; the reasoning, however, is similar, proceeding by inductive definition of H as an infinite sequence by means of the distances of point pairs of E. (II) If $E_1, E_2, \cdots$ is an infinite sequence of linear sets such that, for every n, $E_{n+1}=E_n$, a subset of E_n, then there exists an infinite set E such that, for every n, $E=E_n$, a subset of E_n but $E\neq E_n$. The proof is inductive, and depends on (I). (III) If A is a bounded set of rational numbers, there is no proper subset B of A such that $B=A$. (IV) There exists a family of $c(=2^{\aleph_0})$ sets of positive integers such that no pair of them are equivalent by finite decomposition. *H. Blumberg.*

Source: Mathematical Reviews, Vol 11 No. 3

Sierpiński, Wacław

Sierpiński, Wacław. Sur un problème de M. Lusin concernant les ensembles analytiques. Fund. Math. 36, 44–47 (1949).

A family of sets Φ is said to have the property π_α (α being finite or $\aleph_0$) if, for any sequence of sets E_i ($i=1,2,\dots,\alpha$) chosen arbitrarily from Φ, there exists a sequence of sets H_i of Φ for which we have $\prod_{i=1}^{\alpha} H_i=0$ and $E_i-\prod_{j=1}^{\alpha} E_j \subset H_i$, $i=1,2,\dots,\alpha$. First the author proves the following theorem: If Φ is additive and multiplicative in the Borel sense and has π_α, then it has also π_β for $\beta=3,4,\dots,\alpha$. This result shows, in particular, that the family P_1 of complementary analytic sets [this is an affirmative solution for a problem proposed by N. Lusin [C. R. (Doklady) Acad. Sci. URSS (N.S.) 3 (1934–II), 230–234] or of sets $P(A)$ (in a complete separable space), and P_2 of Borel sets of additive class α ($\alpha>0$) (in a metric space) have π_α for $\alpha=2,3,4,\dots$. Then the author gives an example which shows that we cannot extend the above theorem to the case $\alpha=\aleph_0$. The problem of whether the family P_1 or P_2 has $\pi_{\aleph_0}$ is left open. Finally the author shows by an example that there exist three analytic sets E_1, E_2, E_3 for which no Borel sets Q_1, Q_2, Q_3 have the property: $E_i-E_i \cdot E_j \cdot E_k \subset Q_i$ ($i=1,2,3$) and $Q_1 \cdot Q_2 \cdot Q_3=0$, which answers negatively another problem of N. Lusin [loc. cit.].

K. Kuratowski (Osaka).

Source: Mathematical Reviews, Vol 11 No. 9

SIERPINSKI, WACLAW

Sierpiński, Waclaw. Sur les familles croissantes d'ensembles fermés. Fund. Math. 36, 48–50 (1949).

Let Φ be a family of subsets of a (not necessarily separable) metric space, such that, whenever $E_1, E_2 \in \Phi$, either $E_1 \subset E_2$ or $E_2 \subset E_1$. The author shows very simply that if the sets of Φ are either all closed, or all scattered (clairsemé), their union S is either the union of countably many sets of Φ, or is itself closed or scattered, respectively. Thus, in all these cases, S is an F_σ set. Further, if the sets of Φ are closed and form an increasing transfinite sequence $\{E_\lambda\}$, then $\bigcup(E_{\lambda+1}-E_\lambda)$ is F_σ.

A. H. Stone (Manchester).

Source: Mathematical Reviews, Vol 11 No. 3

SIERPIŃSKI, WACŁAW

Sierpiński, Wacław. Sur l'opération $\overline{\lim}_{y \to +\infty} \Phi(x, y)$. Fund. Math. 36, 51–55 (1949).

This note supplies proofs for theorems previously announced by the author [Pont. Acad. Sci. Acta 4, 203–204 (1940); these Rev. 2, 256]. It is shown that there exist $\Phi(x, y, z)$ of Baire class 1 such that the statement "$f(x) = \lim\inf_{x \to +\infty} \lim\sup_{y \to +\infty} \Phi(x, y, z)$ is measurable" is not decidable. *L. W. Cohen* (Flushing, N. Y.).

Source: Mathematical Reviews, Vol. 11 No. 4

SIERPIŃSKI, WACŁAW

Sierpiński, Wacław. Sur une propriété des ensembles ordonnés. Fund. Math. 36, 56-67 (1949).

Let θ be any transfinite ordinal and let U_θ be the class of transfinite sequences of type θ formed by the numbers 0 and 1, ordered lexicographically. The author improves a result of Hausdorff [Grundzüge der Mengenlehre, Veit, Leipzig, 1914, pp. 181–182] by showing that (I) every ordered set of power $\aleph_\gamma$ (where γ is any ordinal) is similar to a subclass of U_{ω_γ}; (II) the number ω_γ in (I) cannot be replaced by a smaller ordinal. (Hausdorff had shown (I) for sequences formed from the numbers 0, 1, 2.) In the course of the proof it is shown (i) that a class U_θ has no gaps, i.e., whenever U_θ is cut into 2 classes A and B such that every sequence of A precedes every sequence of B, then either A has a last element or B has a first element; (ii) that U_θ contains no well-ordered subclass of power greater than θ. If by a class of type α we mean an ordered class which is neither co-initial nor co-final with any subclass of power less than $\aleph_\alpha$, the remaining results of the paper can be stated as follows. (III) If γ is an ordinal of the first kind and $\gamma=\mu+1$, then U_{ω_γ} has an ordered subclass E of power $2^{\aleph_\mu}$ such that for any ordered class of power $\aleph_\gamma$ there exists a subclass of E which is similar to it. (IV) If α is any non-negative ordinal, there is a class of type $\omega_{\alpha+1}$ with power $2^{\aleph_\alpha}$. (V) Every class of type $\omega_{\alpha+1}$ has power at least $2^{\aleph_\alpha}$ ($\alpha \geq 0$). (VI) The least possible power of a class of type $\omega_{\alpha+1}$ is $2^{\aleph_\alpha}$.

J. L. Kelley (Wellesley, Mass.)

Source: Mathematical Reviews, Vol 11 No3

Sierpiński, Waclaw

Sierpiński, Waclaw. Sur la décomposition des espaces métriques en ensembles disjoints. Fund. Math. 36, 68–71 (1949).

Let M be a metric space such that every (nonempty) open set in M contains at least $\mathfrak{m} \geq \aleph_0$ points. Then M is the sum of $\mathfrak{m}$ disjoint sets each of which contains at least $\mathfrak{m}$ points of each open subset of M. This is the solution, for the metric case, of the problem of "determining the largest number of disjoint dense subsets possible in a resolvable space," proposed by E. Hewitt [Duke Math. J. 10, 309–333 (1943); these Rev. 5, 46; a space is resolvable if it is the sum of two disjoint dense sets]. For $\mathfrak{m} = \aleph_0$, it reduces to the statement that every metric space M which is dense in itself is the sum of an infinite sequence of disjoint dense sets. A set is condensed if each of its open subsets is uncountable. The theorem given above implies that every condensed metric space is a sum of uncountably many disjoint condensed sets each of which is dense in the space.

E. E. Moise (Princeton, N. J.).

Source: Mathematical Reviews, 1950 Vol 11 No. 2

SIERPINSKI, W.

Sierpiński, W., and Singh, A. N. On derivates of discontinuous functions. Fund. Math. 36, 283–287 (1949).

The authors prove the following results. (i) There exists a function $f(x)$, continuous on the right but discontinuous at an everywhere dense set, such that everywhere the lower right derivate of $f(x)$ is zero. (The construction depends on the expression of $f(x)$ in the scale of 3 defined in terms of the expression of x in the scale of 2.) (ii) If a function has a finite right hand differential coefficient everywhere, the discontinuities of the function form a nondense set. The use of the symbol $f'_+(x)$ to denote both the lower right derivate and also (in the latter part of the paper) the right hand differential coefficient may cause some trouble to the reader.

U. S. Haslam-Jones (Oxford).

Source: Mathematical Reviews, Vol 12, No. 2.